



Information hyperlinked
over proteins

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Gene Model

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Symbol	Name	Synonyms	Organism
RPS6	ribosomal protein S6	40S ribosomal protein S6, OK/SW-cl.2, Phosphoprotein NP33	Homo sapiens

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UniProt

P62753,

A2A3R7,

A2A3R5

IntAct

P62753

OMIM

150460

NCBI Gene

6194

NCBI RefSeq

NP_001001

NCBI RefSeq

NM_001010

NCBI UniGene

6194

NCI-Nature Pathways

P62753

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Evidence also suggests that [p70S6K](#) **regulates** the translation of tau mRNA by **phosphorylating** the 40S ribosomal protein S6 . [2008]



Ribosomal protein S6 (S6rp) is **phosphorylated** by the [p70S6K](#) enzyme in mammals, under mitogen/IGF regulation. [2004]



[Phosphorylation](#) of 40S ribosomal protein S6 is **regulated** in part by the mitogen-**activated** [p70 S6 kinase](#) (p70s6k). [1992]



Drosophila [S6K](#) [71] **expressed** in COS or NIH 3T3 cells **phosphorylates** mammalian RPS6 in a mitogen-dependent wortmannin- and rapamycin-sensitive manner, suggesting that its regulation is similar to mammalian [p70S6k](#) . [1996]



Connect &
Implementation
by Robert Hofmann

The key **mTOR** effectors of **cell growth** are eukaryotic initiation factor 4E-**binding** protein 1 (4EBP-1) and the **ribosomal protein S6** kinase (**S6K**). [2007]



The activated **mTOR** kinase **phosphorylates/ activates** **ribosomal protein S6** kinase (**p70S6K**) and **phosphorylates/inactivates** eukaryotic initiation factor 4E-**binding** protein-1 (**4E-BP1**), resulting in the initiation of translation and **cell cycle** progression. [2006]



Autocrine tumour growth factor alpha (TGFalpha)/epidermal growth factor receptor (**EGFR**) stimulation in **colorectal carcinoma** (CRC) cells **regulates** **cell adhesion** and invasiveness via **ribosomal protein S6** kinase (**S6K**) **phosphorylation** in pre-clinical studies. [2007]



The **mTOR** integrates mitogenic signals and intracellular nutrient levels to **activate** eukaryotic initiation factor 4E-**binding** protein-1 and the 40S **ribosomal protein S6** kinase, which controls protein translation and **cell cycle** progression. [2005]



Blocking mTOR affects the activity of the 40S **ribosomal protein S6** kinase (p70s6k) and the **function** of the eukaryotic initiation factor 4E-**binding** protein-1 (**4E-BP1**), leading to growth arrest in the the **G1 phase** of the **cell cycle**. [2000]



Employing specific inhibitors and docking-site mutants of growth factor receptors, recent studies have indicated that the insulin-induced increase in 40S **ribosomal protein S6** and initiation factor 4E **binding protein 1** (**4E-BP1**) **phosphorylation** is mediated by the mTOR/FRAP-p70s6k **signal transduction** pathway. [1997]



Insulin, on the other hand, stimulated protein synthesis (by 30%) and increased **p70 ribosomal protein S6 kinase** (**p70S6K**) Thr389, 40S **ribosomal protein S6** (**rpS6**) Ser235/236, **rpS6** Ser240/244 and eukaryotic initiation factor-4E-**binding** protein-1 (**4E-BP1**) Thr37/46 **phosphorylation** over basal values. [2008]



Since mTOR activates both the 40S **ribosomal protein S6** kinase ((p)70(s6k)) and the eukaryotic initiation factor 4E-**binding** protein-1 (**4E-BP1**), RAP blocks activation of these downstream signaling elements, which results in **cell cycle** arrest in the G1 arrest. [2003]



A farnesylation-defective mutant of **Rheb [71]** **co-immunoprecipitated** with and **inhibited** B-Raf but did not activate **ribosomal protein S6** kinase, indicating that **farnesylation** is not required for B-Raf inhibition by **Rheb [71]** and that B-Raf inhibition and **S6 kinase** activation are separable activities of **Rheb [71]**. [2004]



Here, we show that **phosphorylation** of **mTOR** and its downstream substrate **rpS6** (**ribosomal protein S6**) are robust biomarkers for the antiproliferative **effect** of **EGFR** inhibitors. [2009]



PI-103 and the **mTOR** inhibitor rapamycin both **inhibited** **ribosomal protein S6** **phosphorylation** but there were clear differences in the response of upstream components of the **PI3 kinase [71]** pathway, such as **phosphorylation** of Thr(308)-AKT, that were inhibited by PI-103 but not rapamycin. [2009]



Both PMA and **carbachol** promoted the **phosphorylation** of the **ribosomal protein S6** and **activated** an **S6** protein kinase in the normal but not in the protein kinase C-deficient cells. [1987]





The decrease in protein synthesis is associated with inhibition of translation initiation factors 4E and 4G and **ribosomal protein S6 [71]** under regulatory **controls** of intracellular **insulin [71]** signaling and **leucine** concentrations. [2006]










Identification of phosphoprotein NP33  as a nucleus-**associated** ribosomal S6  protein and its phosphorylation in hematopoietic cells. [1990]  




RAS/ERK [?]  signaling **promotes** site-specific ribosomal protein S6  phosphorylation via RSK [?]  and stimulates cap-dependent translation. [2007]  





Ribosomal S6 kinase 2  (S6K2 ) is a recently identified serine/threonine protein kinase that **phosphorylates** the 40 S ribosomal protein S6  in vitro. [2001]  

Furthermore, ribosomal protein S6  (rpS6 ) also **interacted** with Hsp90 [?]  and exhibited a similar effect upon treatment with Hsp90 [?]  inhibitors. [2006]  

RPS19  depletion **produced** a reduction in steady-state levels of RPS6  and RPS16  via a post-transcriptional mechanism while the levels of RPL7  and RPL26  were unaltered, indicating that levels of ribosomal proteins are determined by subunit assembly. [2007]  

Death-associated protein kinase **phosphorylates** Mammalian ribosomal protein s6  and reduces protein synthesis. [2006]  

In these cells ribosomal protein S6  kinase is **activated** by EGF, IGF-I, insulin and phorbol 12-myristate 13-acetate (TPA) but not by E2. [1988]  

Antigenic reactivity of ribosomal protein S6  and the calcium-**binding** ATPase [?]  inhibitor protein of mammalian mitochondria. [1991]  

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